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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,591	06/21/2001	Joshua L. Koslov	(DMSL)HA-84 (HAL-ID 179)	6329
26479	7590	11/30/2004	EXAMINER AHN, SAM K	
STRAUB & POKOTYLO 620 TINTON AVENUE BLDG. B, 2ND FLOOR TINTON FALLS, NJ 07724			ART UNIT 2637	PAPER NUMBER

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/886,591

Applicant(s)

KOSLOV, JOSHUA L.

Examiner

Sam K. Ahn

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on pre-amendment, filed on 06/21/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,9,10,14,15 and 17 is/are rejected.
- 7) ☒ Claim(s) 2,6-8,11-13,16 and 18-26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it exceeds 150 words.

Correction is required. See MPEP § 608.01(b).

Claim Objections

2. Claims 2,5-8,10-13 and 19-26 are objected to because of the following informalities:

In claim 2, line 3, delete "circuit" and insert "module".

In claim 2, line 4, delete "one error" and insert "one signal error".

In claim 5, line 1, delete "where" and insert "wherein".

In claims 8 and 10 lines 3-4 and 3, respectively, delete "while it is" and insert "while being".

In claim 19, line 2, delete "the effect" and insert "an effect".

Claims 6-7,11-13 and 20-26 directly or indirectly depend on claim 5,10, or 19.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,3-5,9,14,15 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Larsson et al., USP 6,452,987 B1 (Larsson).

Regarding claim 1, Larsson discloses an apparatus for processing a block of data representing at least one symbol, the apparatus (see Fig.9) comprising a jitter compensation filter (610,615,620,625) for performing a filtering operation on said block of data to generate a filtered block of data, the jitter compensation filter having an update input (feedback from 650) for receiving a filter coefficient update signal (output of 650, phase error) from at least one signal error estimate (650) made from the filtered block of data output by the jitter compensation filter (note col.6, line 49 – col.8, line 30)

Regarding claim 3, Larsson teaches all subject matter claimed, as applied to claim 1. Larsson further teaches a channel compensation circuit (605,655 in Fig.9) for receiving said block of data and performing a channel compensation operation on at least a portion of said block of data prior to the block of data being processed by said jitter compensation filter (610,615,620,625 and note col.7, lines 43-53).

Regarding claim 4, Larsson teaches all subject matter claimed, as applied to claim 1. Larsson further teaches wherein said block of data represents a plurality

of symbols, the apparatus further comprising a demodulator circuitry (640,645) coupled to an output of the jitter compensation filter (610,615,620,625).

Regarding claim 5, Larsson teaches all subject matter claimed, as applied to claim 1. Larsson further teaches wherein the error calculation module (650) includes means for generating a decision directed error value or error-driven algorithm (note col.8, lines 10-12)

Regarding claim 9, Larsson teaches all subject matter claimed, as applied to claim 1. Larsson further teaches wherein the error calculation module (650) includes means for generating a non-decision directed error value (or LMS algorithm, used during steady-state which is not dependent upon decision but power, note col.8, lines 13-30).

Regarding claim 14, Larsson discloses a system (see Fig.8 and 9) for processing a multi-tone signal (DMT), the system including a channel compensation module (505,515 and 605,655) for performing a channel compensation operation on said multi-tone signal (note col.6, lines 49-58) and a jitter compensation module (610,615,620,625,630,635,650 in Fig.9 and equivalent elements also illustrated in Fig.8) coupled to an output of the channel compensation module for performing a jitter reduction operation on the channel compensated multi-tone signal (note col.6, line 49 – col.8, line 30).

Regarding claim 15, Larsson teaches all subject matter claimed, as applied to claim 14. Larsson further teaches wherein the jitter compensation module includes a jitter compensation filter with programmable filter tap weights (610,615,620,625 in Fig.9 and 510 in Fig.8), and means for iteratively updating the filter tap weights as a function of the jitter compensation filter output (wherein 510 is updated, note col.7, lines 43-65).

Regarding claim 17, Larsson teaches all subject matter claimed, as applied to claim 14. Larsson further teaches wherein the means for iteratively updating the filter tap weights includes a signal error estimation circuit for generating from the output of the jitter compensation filter a measure of a symbol error (output of 650).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larsson et al., USP 6,452,987 B1 (Larsson) in view of Chen et al., USP 6,246,717 B1 (Chen).

Regarding claim 10, Larsson teaches all subject matter claimed, as applied to claim 1. As previously explained, Larsson teaches the jitter compensation filter (610,615,620,625), however, Larsson does not teach having an input buffer for storing said block of data.

Chen teaches a receiver having a memory (20 in Fig.4) for storing the incoming signal and further removing phase jitter or error (54,60,62,64,66). (note col.7, lines 4-56) Chen teaches testing of incoming signal, and thus provides the memory wherein the stored signal may be retrieved as needed and required.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Larsson's teaching by inserting the memory of Chen prior to the FFT (in Fig.8,9) and store the incoming signal for the purpose of processing the signal as frequently as needed, and thus would process the signal including the processing of function performed by the jitter compensation filter.

Allowable Subject Matter

5. Claims 2,6-8 and 11-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and overcome the claim objections.

6. Claims 16 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. Claims 19-26 would be allowable if rewritten or amended to overcome the claim objections set forth in this Office action.
8. The following is a statement of reasons for the indication of allowable subject matter:
Present application discloses a method and an apparatus of receiving a multi-tone signal comprising channel compensation and jitter compensation filter. An error calculation circuit receiving the output of the jitter compensation filter computes for the error and updates the coefficients in the filter. Closest prior art, Larsson, teaches all subject matter claimed. However, Larsson does not teach wherein a buffer is located prior to any filtering and thus repeating steps as recited in claim 19 until filter updating stop criterion is satisfied. Larsson further does not teach a control circuit to determine when to output a filtered block of data, and does not teach a selection device for selecting one of the decision or pilot directed error value to be output.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cupo teaches phase jitter correction in a communication system using IIR filter arrangement.

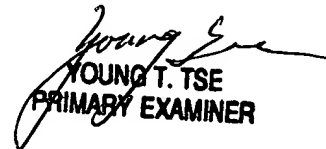
Onizawa et al. teach receiving a multi-carrier signal performing a channel estimation and filtering for phase jitter removal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn
11/15/04


YOUNG T. TSE
PRIMARY EXAMINER